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HP-To-Sun Migration Plan

White Paper

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Abstract

This is the HP-To-Sun migration plan that will provide information and details associated with the migration of COTS software products and custom software that currently resides on HP machines to Sun machines. The COTS software products and custom software on HP machines are planned to migrate to Sun machines running Solaris 2.5.1. At the conclusion of this effort, the HP machines should be returned to the ECS Landover Facility and will no longer be in use at DAAC sites.

Keywords: COTS, migration, HP, HP-UX, OpenView, Remedy, DBVision, Tivoli, DCE, DarMain, Trouble Ticketing

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Contents

5. HP-To-Sun Migration Implementation

List of Tables

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1. Introduction

1.1 Purpose

The purpose of this document is to describe the approach for migrating all remaining ECS software products and custom code currently baselined against HP machines at the sites to a Sun platform.

1.2 Organization

This paper is organized as follows:

Section 1 provides the Introduction to the document

Section 2 provides a summary of the HP-To-Sun Migration.

Section 3 provides the details of the migration related to COTS Hardware.

Section 4 provides the details of the migration related to COTS and custom software.

Section 5 provides the implementation details of the HP-To-Sun Migration.

1.3 Review and Approval

This White Paper is an informal document approved at the Office Manager level. It does not require formal Government review or approval; however, it is submitted with the intent that analytical review and constructive comments will be forthcoming.

The ideas expressed in this White Paper are valid at the time of publication.

Questions regarding technical information contained within this Paper should be addressed to the following ECS and/or GSFC contacts:

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2. HP-To-Sun Migration Description

2.1 Executive Summary

The migration of HP COTS and custom code to the Sun hosts has been driven by the goals to simplify the ECS system and reduce resource allocations for COTS products without incurring significant additional risk. Factors including reduction of resource requirements to maintain and upgrade a third operating system and COTS versions, as well as, high maintenance costs for HP hardware and software are the primary drivers.

ECS Systems Engineering identified costs and technical risks associated with a migration from HP platforms. It was identified that there were six unique (HP-only) COTS products that would need to be migrated. One of these six products, DBXcessory, can be removed as there were no level three or level four requirements associated with the product and there was no active use of the product or desire to retain the product at the DAACs. This product will be removed from the baseline during the HP-To-Sun Migration process.

Another COTS product, HP OpenView, is currently under review for possible removal and/or replacement. The OpenView product is currently not in use at the DAACs. The DAACs have identified alternative products that are in use to meet requirements. The OpenView requirements, DAAC usage and DAAC alternative COTS/freeware are being reviewed by ECS. The HP-To-Sun Migration will proceed with the migration of the remaining four COTS products. It is planned that when the OpenView review is completed, OpenView and/or replacement products will be scheduled for PSRs as new installations. OpenView is supported on Solaris 2.5.1, as well as, HP-UX if the decision is made to retain the product.

No major risks or costs are incurred by migrating the four remaining COTS products because all four COTS products:

- Are supported on the Solaris Operating System (Solaris version 2.5.1 or Sun OS version 5.1).
- Licenses can be transfered to an alternative Operating System at no cost. e.g., no new software procurements will be necessary.

The four COTS products planned for migration from HP-To-Sun machines are:

- DBVision
- Tivoli Server
- Remedy
- DCE Cell Manager Management Agent (Server)

The details of the migration plans for these COTS products are discussed section 4, Software Migration of this document.

There are no major issues in migration of the custom code. The migrating custom code will be delivered as test executables (TE). This subject is also discussed in detail in section 4, Software Migration.

Hardware Engineering needed to host all of the migrating COTS products. This is discussed in detail in section 3, Hardware Migration, of this document.

The HP Migration is targeted for completion by 06/30/2001.

2.2 Affected Baselines and Documents

The ECS documentation identified in Table 2-1 will be revised and re-issued as a result of the HP software migration. It is planned that the PSR for the individual COTS products will add the COTS product to the targeted Sun host. The product will not be removed from the baseline of the HP host until the HP Hardware device is removed from the baseline, unless there are operational or licensing requirements to do so. Shutdowns and removal of COTS products and/or licenses will be addressed within the COTS product PSRs. The following documents will be updated as deemed appropriate during the HP-To-Sun Migration.

Table 2-1. HP-To-Sun Migration Technical Documentation Impacts

ECS Technical Document Number	ECS Technical Document Name
910-TDA-003	COTS Software Version Baseline
910-TDA-023	Critical COTS List
911-TDA-xxx	Remedy Patch Baseline
920-TDx-002	Hardware-Software Map (for the VATC, PVC, and each site)
920-TDx-010	Hardware Diagrams
920-TDx-004	Floor Plan
920-TDx-005	Cable Management Plan
922-TDx-010	Disk Partitions for MSS Servers
922-TDx-002	Disk Partitions for MSS App Servers
920-TDx-003	System Infrastructure Baseline (for the VATC, PVC, and each site)
920-TDx-009	DAAC Hardware/Database Mapping (for the VATC, PVC, and each site)
920-TDE-014	Hardware-Patch Map (for the VATC, PVC, and each site)
914-TDA-043	Tivoli Management Environment Version 3.6 Upgrade for the ECS Project
914-TDA-058	DCE Cell Manager Installation and Configuration Report
914-TDA-071	Remedy Action Request System (ARS) Maintenance Upgrade for the ECS Project
914-TDA-084	DBVision 3.1.8 Installation for the ECS Project

3. Hardware Migration

In support of the effort to simplify the system, Hardware Engineering analyzed existing hardware platforms to identify systems with sufficient disk and load capabilities to support additional COTS products with minimal risk. The result of this analysis is presented in the following sections.

In order to reduce the risk of migrating all COTS products to a single host. Note: Some COTS products have functional or administrative associations with a specific machine or subsystem, the five COTS products are to be migrated as identified in Table 3-1.

Table 3-1. HP-To-Sun Migration Hardware Platforms

COTS Product	Sun Migration Target
DBVision	Data Spec Workstation
Tivoli	MSS Applications Server Primary
Remedy	MSS Applications Server Primary
DCE Cell Manager	CSS Server or DAAC-identified migration host

3.1 DAAC Migration Target Hosts

Table 3-2 provides identification of the specific DAAC hosts targeted in the HP-To-Sun Migration for each of the COTS products to be migrated. DCE Time Service/Backup Courier is also included in Table 3-2 since this DCE function requires reconfiguration steps to migrate the function to a Sun host. An Engineering Technical Directive will address the steps required to migrate this DCE service to a Sun host.

Table 3-2. DAAC Migration Hosts

DAAC	DBVision	Tivoli /Remedy	EcMsTtMSSSRVR Custom Code	DCE Cell Manager (Management Agent)	DCE Time Service/Backup Courier	EcCsDarMainMSSSRVR_EDC Custom Code
EDC	e0dms03	e0mss21	e0mss21	e0acs06	e0ais03	e0ins02
GSFC	g0dms03	g0mss21	g0mss21	g0dis01	g0ais01	N/A
LaRC	l0dms01	l0mss21	l0mss21	l0mss05	l0ais01	N/A
NSIDC	n0dms04	n0mss21	n0mss21	n0mss20	n0ais01	N/A
PVC	p0dms01	p0mss21	p0mss21	p0css02	p0ais01	N/A
VATC	t1dms02	t1mss06	t1mss06	t1css01	t1ais01	t1ins01
SMC	m0mss16	m0mss16	m0mss16	m0mss02	m0mss02	N/A

3.2 Disk Space Issues Identified

The disk space for all targeted migration hosts has been reviewed and identified as sufficient to support migration. Two potential issues were identified with p0mss21 and l0mss21 and have been resolved. Hardware Engineering recommended that a data2 area be created on an unused portion of disk. This step has been implemented and was successful. At LARC, l0mss21 was identified not to be utilizing slice 6. Although a data1 partition was on root, only a small disk space was available. Hardware Engineering recommended partitioning slice 6 as data1.

One additional issue was identified as it is related to the Remedy database sizing. DDM has revised the baseline database sizing in ECS Technical Document DAAC HW Database Mapping, 920-TD*X*-009. The HP database sizing for EDC is currently over the 150MB sizing identified in this most recent DAAC HW Database Mapping document. EDC has indicated that the database sizing on the Sun migration host will be in conformance with the baseline identified in the 920-TD*X*-009 documents.

4. Software Migration

4.1 HP-To-Sun Software Migration Overview

It has been decided to migrate ECS software from HP platforms to Suns in order to reduce maintenance and support costs and to achieve compatibility with Sybase and Solaris upgrades that will follow.

COTS products being migrated include:

- DBVision and its database
- DCE Cell Manager (Management Agent)
- Remedy and its database
- Tivoli and associated ECS configurations

Only one product will be upgraded as part of the migration. Tivoli's Management Framework and Enterprise Console (Tivoli server modules) will be upgraded from v3.6 to v3.6.3 (TEC Framework) and 3.6.2 (Enterprise Console). This will enable compatibility with the migration to Sybase ASE 11.9.2 planned for later this year, as well as, the current Sybase ASE 11.5.1.2.

DCE Time Service/Backup Courier function which currently resides on HP machines will be migrated to a Sun host. This migration does not require any new installation. It will be accomplished by reconfiguration of existing Sun DCE Clients. An Engineering Technical Directive will be provided with instructions supporting this procedure.

Custom programs being migrated include:

- DarMain (EcCsDarMainMSSSRVR_EDC)
- Trouble Ticketing Web Interface (EcMsTtMSSSRVR)
- Remedy to DDTS Translation Tool (SMC DUE)

Kick-off meetings have been completed for all COTS products targeted for migration. The CUT Matrix will provide updates on a weekly basis on all HP-To-Sun Migration activities. The CUT matrix should be referenced for the most recent schedule and status.

4.2 Affected Subsystems and CIs

Tivoli and Remedy are MSS products that will be relocated from primary and secondary MSS Server machines to primary Applications Server machines. DBVision is an MSS product being relocated from primary and secondary MSS Server machines to DMS Data Spec Workstation machines. DCE Cell Manager is a CSS product being moved from primary and secondary MSS HP Server machines to CSS Sun Server machines or DAAC-identified hosts.

With respect to the custom software, MSS will provide a Sun variant for its DarMain and Trouble Ticket Web interface programs. DarMain will be relocated to a DMS Interface Server machine (EDC only). The Trouble Ticket Web interface program will move with Remedy to primary Application Server machines.

Table 4-1 identifies the ECS functional components involved in the movement of products from the HPs to Suns.

Table 4-1. Product Movements

Product	Current HP	Target Sun	Subsys
COTS			
Tivoli (+ database)	MSS Server (P)	Applications Server (P)	MSS
Remedy (+ database)	MSS Server (P) MSS Server (S)	Applications Server (P)	MSS
DBVision	MSS Server (P) MSS Server (S)	 Data Spec Workstation 01 (except NSIDC) Data Spec Workstation 02 (NSIDC only)	MSS DMS
DBVision database	MSS Server (P) MSS Server (S)	Applications Server (P)	MSS
DCE Cell Manager (Mgmt Agent)	MSS Server (P)	CSS Server or DAAC-identified Migration Hosts	CSS
Custom			
DarMain (EcCsDarMainMSSSRVR_EDC)	MSS Server (S) (EDC only)		MSS
		Interface Server 01 (EDC only)	DMS
Trouble Ticketing Web Interface (EcMsTtMSSSRVR)	MSS Server (P) MSS Server (S)	Applications Server (P)	MSS
Remedy to DDTS Translation Tool	SMC DAAC Unique Extension (DUE)		M&O

4.3 Development Upgrade Strategy

Development upgrade actions must expedite the migration and minimize transition impacts, as other ECS upgrades are in work at the same time. Consequently:

- The migration effort will not include new ECS functionality or NCR fixes.
- The COTS products will migrate in parallel.
- Migrating COTS products are independent of each other.
- Each will have its own PSR.

- Each product will proceed toward PSR on its own schedule, but in concert with corresponding custom code and databases.
- Schedules are constrained mostly by lead times required to obtain the software from vendors and higher priority test facility commitments.
- Migrating custom code will be delivered as test executables.
- COTS products will be migrated to common machines to the extent practical in order to lessen the number of systems impacted.
- There will be adherence to the standard COTS upgrade process for consistency and to assure quality results.

The migration strategy assumes Sybase 11.5.1.2 has been installed at all sites and that Sybase 11.9 has not. The upgrade to Sybase 11.9.x is scheduled to occur after the HP software migration effort is complete, except for ACG hosts. The Sybase ASE 11.9.3 upgrade of ACG hosts will occur prior to the HP-To-Sun migration, but will not have impact on the migration.

4.3.1 Migration/Upgrade Process

The ECS standard upgrade process for migrating each COTS software product will be utilized for all COTS products as identified in ECS Process Instruction, SE-1-025, including following activities:

- Conduct kickoff meeting.
- Conduct readiness review.
- Obtain COTS software.
- Port custom code.
- Perform initial (IDG cell) testing.
- Verify functionality and subsystem interfaces in Functionality Lab.
- Verify functionality in the VATC.
- Conduct PSR.
- Deploy to sites and install.

PSRs for COTS products will include instructions to remove licenses and/or products from the HPs when necessary.

Several ECS organizations will support the software migration as follows including:

- Development (COTS)
- Development (CSMS)
- IDS

- RTSC
- Construction Office
- Subsystems (DDM)
- SVAT (Test)
- ILS
- M&O
- CM

4.3.2 Licenses

Licenses must be moved from HP machines to corresponding Sun machines. Current licenses will be migrated from the HP MSS Primary to the identified Sun migration machines. New license keys must be obtained for some products. Procedures related to obtaining new license keys and/or migrating licenses will be addressed in the PSR for each COTS product and will comply with vendor licensing agreements.

In some cases, additional licenses are expected to be recovered. Sybase ASE licenses are expected to be recovered for use in other ECS activities, as a database is already installed on the targeted MSS Applications Server Primary host. The existing Sybase ASE license on the HPs will not need to be migrated.

4.3.3 Databases

Databases that are associated with COTS products will be relocated from HP platforms to Suns. Table 4-2 identifies these database migrations. Although the DBVision COTS product will target migration to the machines identified in Table 4-1, the DBVision database is targeted for migration to the Sybase Servers identified in Table 4-2.

Table 4-2. Hardware/Database Migrations

Current Platforms	Current Sybase Servers	Target Platforms	Target Sybase Servers	Database Names
t1msh01	t1msh01_srvr	t1mss06	t1mss06_srvr	ARSystem, DBVision, tec
PVC				
p0msh08	p0msh08_srvr	p0mss21	p0mss21_srvr	ARSystem, DBVision, tec
DAACs				
e0msh03	e0msh03_srvr	e0mss21	e0mss21_srvr	ARSystem, DBVision, tec
g0msh08	g0msh08_srvr	g0mss21	g0mss21_srvr	ARSystem, DBVision, tec
l0msh03	l0msh03_srvr	l0mss21	l0mss21_srvr	ARSystem, DBVision, tec
m0msh03	m0msh03_srvr	m0mss16	m0mss16_srvr	ARSystem, DBVision, tec
n0msh03	n0msh03_srvr	n0mss21	n0mss21_srvr	ARSystem, DBVision, tec

4.4 Test Approach

HP software migration testing will follow the standard ECS processes for verifying COTS and custom code. It will consist primarily of running regression tests that will exercise current functionality. COTS products will be tested in the IDG cell first, then in the Functionality Lab and VATC. Custom code will be unit tested in a developer's environment, then in the Functionality Lab and VATC.

Tests will be conducted primarily in environments containing Release 6A custom code and databases.

In Functionality Lab, migrating COTS will be tested primarily on String 2 machines (e.g., f2mss01 and f2css01). DBVision must be loaded in both strings. COTS that are not mode-specific need not be installed and run on Functionality Lab machines unless it is necessary they be tested on machines with custom code servers.

The following sections outline the test approach for each product. Products appear in alphabetical order.

4.4.1 DarMain

The migration objective is to move the current version of DarMain (EcMsDarMainMSSSRVR) from its current HP platform to a Sun. DarMain has interdependencies with other Data Acquisition Request programs, but does not require any changes to COTS products, hardware, databases, other custom programs, or databases.

DarMain will be tested in the Functionality Lab and VATC using test procedures that already exist. In Functionality Lab, it will be tested on both strings and in a Release 6A mode.

ECS regression test procedures for DarMain will be performed.

4.4.2 DBVision

The migration objective is to move the current version of DBVision (v3.1.8) from an HP platform to a Sun. The migration neither depends on nor requires any other product upgrade, hardware change, or custom code change, assuming Sybase v11.5.1.2 is installed. However, it will have to be configured to use a new database. The database will no longer reside on the same system as the product. Rather, the DBVision database will reside on the primary application server together with the Sybase server the product will use. DBVision data need not be transferred from the HP platforms to the Suns. DBVision will be among the first migration products installed at the sites. DBVision is targeted to be implemented as Phase 1 of the HP-To-Sun Migration Implementation, discussed in section 5.1, Phase 1 Implementation: DBVision Migration.

DBVision will be tested in the IDG cell, Functionality Lab, and VATC. In Functionality Lab, it will be tested on both strings.

ECS regression test procedures for DBVision include DBVision software (Database Administration) Checkout – verifies that the product can access various database.

4.4.3 DCE Cell Manager

The migration objective is to move the current version of DCE Cell Manager (v1.6.2) from an HP platform to a Sun. The migration neither depends on nor requires any other product upgrade, hardware change, custom code change or database. DCE Cell Manager will be implemented in Phase 2 of the HP-To-Sun Migration Implementation as discussed in section 5.2 Phase 2 Implementation: DCE Cell Manager Migration.

DCE Cell Manager will be tested in the IDG cell, Functionality Lab, and VATC. In Functionality Lab, it will be tested on a single string**,** string 2. Tests will verify the basic functionality and operability of the product.

4.4.4 Remedy

The migration objective is to move the current version of Remedy (v3.2.1) from an HP platform to a Sun. The migration neither depends on nor requires any other COTS product upgrade or on any hardware change, assuming Sybase v11.5.1.2 has been installed. Remedy will use an ARSystem database created on the Remedy host, and existing data records will have to be transferred. In addition, custom code that provides a Trouble Ticketing Web Interface has to be ported to and tested on the Sun as well.

The Remedy product creates the ARSystem database during installation. Installation instructions for PSR will describe how to use of Remedy's features for copying ECS schema definitions and trouble ticket data from the HPs to the Suns.

Remedy will be tested in the IDG cell, Functionality Lab, and VATC on Sybase server hosts using test procedures that largely already exist. In Functionality Lab, it will be tested in string 2 using a Drop 6A database. Tests will include transferring Remedy records from the HP to the Sun.

ECS regression test procedures for Remedy include:

- Remedy Action Request System Upgrade – verifies capabilities to submit, update, and forward a trouble ticket, as well as, to generate a trouble ticket report and edit the trouble ticket database schema.
- Trouble Ticket Checkout – verifies that a Trouble Ticket from a DAAC can be forwarded to the SMC and that the ticket is inserted into the SMC's Remedy database.

Remedy ARS is planned to be implemented in Phase 3 of the HP-To-Sun Migration Implementation, refer to section 5.3 Phase 3 Implementation: Remedy ARS Migration.

4.4.5 Trouble Ticketing Web Interface

The migration objective is to move the trouble ticketing Web interface from its current, HP platform to the Sun system that will host Remedy. The interface requires that the EcMsTtMSSSRVR custom code, Netscape Enterprise Server, and Remedy be co-located on the same machine, but users access it via Netscape Communicator browsers that run on other machines. The interface consists of Web pages and supporting cgi-bin programs that will be installed at the sites coincident with the new Remedy variant.

The interface will be demonstrated in the IDG cell, then tested in Functionality Lab and the VATC using procedures that already exist. In Functionality Lab, it will be tested in string 2 on the Remedy (Sun) host in a Drop 6A mode.

ECS regression test procedures for the Trouble Ticketing Web Interface will be performed.

Remedy ARS and the Trouble Ticketing Web Interface are planned to be implemented in Phase 3 of the HP-To-Sun Migration Implementation, as discussed in section 5.3 "Phase 3 Implementation: Remedy ARS Migration".

4.4.6 Remedy to DDTS Translation Tool

The Remedy to Distributed Defect Tracking System (DDTS) Translation Tool was designed to provide an automated method of transferring Remedy Trouble Tickets residing at the SMC to the DDTS System in the EDF. To accomplish this a Remedy screen has been developed as a user interface that executes a series of C programs and Unix scripts. This software is only deployed at the SMC.

The tool is currently maintained by the M&O SOS Team. It will available to the SMC at the time that Remedy is deployed at the DAACs. Testing will be performed in the EDF and the SMC.

4.4.7 Tivoli

The migration objective is to upgrade Tivoli's Management Framework and Enterprise Console components to version 3.6.3 and version 3.6.2 respectively, while moving the Tivoli server to a Sun platform. Establishing the new Tivoli managed region on a different Operating System (OS) platform requires that all Tivoli clients must be reinstalled. The migration of Tivoli neither

depends on nor requires any other product upgrade, hardware change, custom code change, or external database. Tivoli servers on the Sun will not be configured to monitor HP machines.

Tivoli will be tested in the IDG cell, the Functionality Lab, and then the VATC using test procedures that already exist. In Functionality Lab, it will be installed and tested on a Sun in string 2.

ECS regression test procedures for Tivoli include:

- Tivoli Management Environment 10, v3.6 – tests the communications and functionality of the Tivoli Framework, Logfile adapter, and Event Console
- Process Life Cycle, Status, and Performance Monitoring (B080130-020) – verifies the ability of the LSM to monitor the status of managed applications and to generate MSS error logs and management reports

Tivoli is planned to be implemented in Phase 4 of the HP-To-Sun Migration Implementation, as discussed in section 5.4 Phase 4 Implementation: Tivoli Server Migration and Upgrade.

4.4.8 Schedule and Progress Metrics

Table 5-1 in the next section provides the current estimated completion dates. Schedule and progress in completing the activities above will be updated on a weekly basis in the CUT matrix. To be added to the e-mail distribution list for the weekly CUT Meeting Agenda and Matrix, send request to Maryellen Corbett (mcorbett@eos.hitc.com).

The following dates are tracked in the matrix for each COTS product upgrade.

- Development Kick-off Date.
- Turnover to Test Date (completed IDG and Functionality Lab testing for VATC installation).
- Turnover to M&O (draft PSR with installation instructions and test results completed).
- PSR date (Date that final PSR is posted for installation).

5. HP-To-Sun Migration Implementation

The COTS products that are being migrated from HPs to Solaris have no dependencies on each other. Each COTS product could be migrated separately without impact to the other COTS software being migrated. The custom code product DarMain can also be migrated without impact to any COTS product migration or other custom code delivery. Only the Trouble Ticket custom code is required to be delivered with the Remedy ARS COTS product. These are therefore included together in the same phase.

The HP migration will occur in six phases. The phases are presented in Table 5-1.

Table 5-1. HP Migration Implementation Phases

Phase #	Phase Description	Phase Activities	Targeted Host	Targeted PSR Date
1.	• Migration of DBVision	• DBVision Migration as identified in PSR.	• DMS Data Spec Workstation at DAACs • MSS Applications Server at SMC	03/09/2001 (completed)
2.	• Migration of DCE Cell Manager • Migration of DCE Time Services/Back up Courier	• DCE Cell Manager Management Agent Migration as identified in PSR • DCE Time Service/Backup Courier Migrations as identified in ECS TD 01-006.	• CSS Server • AIT Workstation /DBMS Server	03/27/2001 (completed) 04/25/2001 (completed)
3.	• Migration of Remedy ARS	• EcMsTtMSSSRVR custom code installation as identified in TE. • Netscape Enterprise Server installation as identified in PSR revision • Remedy ARS Migration as identified in PSR • Recovery of Remedy licenses (within 30 days) • Remedy to DDTS Translation Tool Migration (SMC Only)	• MSS Applications Server Primary	05/15/2001 (est.)
4	• Migration to Tivoli Server	• Tivoli Server migration as identified in PSR.	• MSS Applications Server Primary	05/31/2001 (est.)
5.	• Migration of EcCsDarMain MSSSRVR_EDC	• EcCsDarMainMSSSRVR_EDC custom code Migration as identified in TE delivery	• e0ins02 (EDC Interface Server 01)	05/31/2001 (est.)
6.	• HP Removal Phase	• Return of hardware & recovery of remaining licenses as identified in this plan.	• HP primary and secondary machines.	• 06/30/2001

The phases have been identified to facilitate completion of the migration of each COTS product as the PSR documentation is completed and released to the DAACs. The DAAC may be better able to schedule and complete each phase as a discrete task than to schedule and complete all migration tasks simultaneously. It should be noted that the phase sequence is recommended, but

not required. Any of the first five phases may be implemented in any order or sequence, as there are no dependencies between these phases. However, all of the first five phases are required to be completed prior to Phase 6, Removal of the HP hosts.

5.1 Phase 1 Implementation: DBVision Migration

Phase 1 implementation will target migration of the DBVision COTS product. The DBVision migration PSR will identify all activities need to migrate this COTS product, including instructions to connect the migrated COTS product to the appropriate database installation, since the database will no longer be local to the server where DBVision is installed. The targeted migration COTS product and database hosts are identified in Table 5-2.

Table 5-2. Phase 1: DBVision Migration

DAAC	DBVision Product Migration Target	Current Baseline Version	Migration Version	Targeted Sybase Installation	Targeted Sybase Version at Migration	Custom Code Dependencies
EDC	e0css02	3.1.8	3.1.8	e0mss21	11.5.1.2	None
GSFC	g0css02	3.1.8	3.1.8	g0mss21	11.5.1.2	None
LaRC	l0css02	3.1.8	3.1.8	l0mss21	11.5.1.2	None
NSIDC	n0css02	3.1.8	3.1.8	n0mss21	11.5.1.2	None
PVC	p0css02	3.1.8	3.1.8	p0mss21	11.5.1.2	None
VATC	t1css01	3.1.8	3.1.8	t1mss06	11.5.1.2	None
SMC	m0mss16	3.1.8	3.1.8	m0mss16	11.5.1.2	None

There are no installation sequences or dependencies other that those identified in the PSR. Although it is recommended that this installation occur as the first phase of the HP-To-Sun Migration, the DBVision migration may occur at any time prior to removal of the HPs in Phase 6.

5.2 Phase 2 Implementation: DCE Cell Manager Migration

Migration of the DCE Cell Manager Management Agent and a DCE Time Service/Backup Courier that is currently hosted on the HP MSS Server is to be completed in Phase 2 of the HP-To-Sun Migration. The DCE Cell Manager Management Agent Migration PSR will address migration of DCE Cell Manager functionality currently hosted on the HP MSS Server, including the following:

- Installation of the DCE Cell Manager Management Agent on the targeted Solaris CSS Server.
- Migration of the DCE Cell Manager Management Agent Licenses.
- Verification of installation on the CSS or DAAC-identified Solaris Migration Host.

- Removal of the DCE Cell Manager Management Agent on the HP MSS Server.

The HP MSS Server also provides DCE Time Service/Backup Courier functions. This function is also required to be migrated to a Solaris host.

There are no custom code or database dependencies or impacts related to the migration of DCE Cell Manager Management Agent or DCE Time Service/Courier functionality.

5.2.1 Migration of DCE Cell Manager Management Agent

Phase 2 will migrate DCE Cell Manager Management Agent and DCE Time Service/Courier functionality. The PSR will provide the details for the migration of this COTS product to the platforms identified in Table 5-3.

Table 5-3. DCE Cell Manager DAAC Migration Hosts

DAAC	DCE Cell Manager (Management Agent) Migration Target
EDC	e0acs06
GSFC	g0dis01
LaRC	l0mss05
NSIDC	n0mss20
PVC	p0css02
VATC	t1css01
SMC	m0mss02

5.2.2 Migration of DCE Time Services/Courier Function

DCE Time Services/Backup Courier functionality is currently supported on the HP MSS Server. The AIT Workstation/DBMS Server has been identified as the Sun migration host for this service. The specific AIT Workstation/DBMS Server Sun migration hosts are identified in Table 5-4.

Table 5-4. DCE Time Service DAAC Migration Hosts

DAAC	DCE Time Service/Backup Courier Target
EDC	e0ais03
GSFC	g0ais01
LaRC	l0ais01
NSIDC	n0ais01
PVC	p0ais01
VATC	t1ais01
SMC	m0mss02

No installation is required for the migration of DCE Time Service/Backup Courier migration. The target hosts identified in Table 5-4 and the HP MSS Servers will require reconfiguration of the existing DCE Client as identified in planned DCE Time Service/Backup Courier Migration Engineering Technical Directive (TD). This Engineering TD (01-006) and the DCE Cell Manager Management Agent PSR are planned to be delivered at the same time with separate CCRs so that the DCE functionality may be migrated at the same time.

There are no installation sequences or dependencies other that those identified in the DCE Cell Manager Management Agent PSR or the DCE Time Service/Backup Courier Engineering Technical Directive. Although it is strongly recommended that this installation occur as the second phase of the HP-To-Sun Migration, the DCE Cell Manager Management Agent and DCE Time Service/Backup Courier migration may occur at any time prior to removal of the HPs in Phase 6.

5.3 Phase 3 Implementation: Remedy ARS Migration

Migration of Remedy to the Sun involves three distinct but related products that collectively implement the ECS Trouble Ticketing Service: the Remedy COTS product and associated patches, Netscape Enterprise Server, and the MSS Trouble Ticketing Web Interface custom code. The planned approach aims to safeguard trouble ticket data while minimizing outage of any portion of the Trouble Ticketing Service. Since trouble tickets can be forwarded among sites, the approach also aims to preserve the ability of sites to migrate the products on their own schedules without corresponding changes to Remedy configurations at other sites.

Products involved in the Remedy migration should be installed in the following sequence:

1. Trouble Ticket Web Interface code. The EcMsTtMSSSRVR custom software package can be installed without the other products being present, but it cannot be used or tested until the other components are installed.

2. Netscape Enterprise Server. Netscape Enterprise Server must be installed on the MSS Applications Server (P) host, and an MSS instance of the server must be configured to reference elements of the EcMsTtMSSSRVR package. Referenced elements need not be present, but the installer will see some warning messages if they are not.

3. Remedy COTS product. Installation of the COTS product will also include configuration changes and data transfers that accomplish cutover to operations on the Sun. Consequently, the EcMsTtMSSSRVR and Netscape server should be in place first. Remedy will create its own ARSystem database. Installation instructions assume that logical devices for the database and log already exist on the MSS Applications Server (P) machine as per ECS specifications for Sybase databases baselined at PSR. Remedy utilities will be used to copy Remedy data from the HP to the Sun.

To minimize outage of the ECS Trouble Ticketing Service at a site, the Remedy COTS product will be installed in two phases. During the first phase, a site will load the Remedy binaries and configuration files on the Sun, transfer the trouble ticketing database schema and static (e.g., reference) data, and establish an operating environment for the new Remedy. Only the installer will be able to use Remedy on the Sun at this time. This provides an opportunity to perform checkout tests that don't involve the Remedy mailbox (which will still be in use by the Remedy on the HP).

During the second phase, Remedy will be shut down on the HP, trouble tickets and other non-static records will be transferred to the Sun, and the mail handler and licenses will be activated on the Sun, effectively placing Remedy back in operation.

Table 5-5 provides migration implementation detail for the Remedy ARS Server Migration.

Table 5-5. Phase 3: Remedy ARS Migration (1 of 2)

DAAC	COTS Product Migration Target	Current BL Version	Migration Version	Targeted Sybase Host	Targeted Sybase Version at Migration	Support for future Sybase 11.9.2 Upgrade	Custom Code dependent on Remedy
EDC	e0mss21	3.2.1	3.2.1 w/patch roll-up	e0mss21	11.5.1.2	Yes	• EcMsTtMSSSRVR
GSFC	g0mss21	3.2.1	3.2.1 w/patch roll-up	g0mss21	11.5.1.2	Yes	• EcMsTtMSSSRVR
LaRC	l0mss21	3.2.1	3.2.1 w/patch roll-up	l0mss21	11.5.1.2	Yes	• EcMsTtMSSSRVR
NSIDC	n0mss21	3.2.1	3.2.1 w/patch roll-up	n0mss21	11.5.1.2	Yes	• EcMsTtMSSSRVR
PVC	p0mss21	3.2.1	3.2.1 w/patch roll-up	p0mss21	11.5.1.2	Yes	• EcMsTtMSSSRVR

Table 5-5. Phase 3: Remedy ARS Migration (2 of 2)

DAAC	COTS Product Migration Target	Current BL Version	Migration Version	Targeted Sybase Host	Targeted Sybase Version at Migration	Support for future Sybase 11.9.2 Upgrade	Custom Code dependent on Remedy
VATC	t1mss06	3.2.1	3.2.1 w/patch roll-up	t1mss06	11.5.1.2	Yes	• EcMsTtMSSSRVR
SMC	m0mss16	3.2.1	3.2.1 w/patch roll-up	m0mss16	11.5.1.2	Yes	• EcMsTtMSSSRVR • Remedy to DDTS Translation Tool (SMC Only)

The Remedy migration version 3.2.1 has been verified as supporting the planned Sybase ASE 11.9.2 upgrade.

5.4 Phase 4 Implementation: Tivoli Server Migration and Upgrade

Phase 4 entails migrating the Tivoli servers from the HPs to the Suns while upgrading the Tivoli Management Framework product to version 3.6.3 and the Enterprise Console product to version 3.6.2 Since Tivoli does not support moving a Tivoli Management Region (TMR) across platform types, the migration must be accomplished by de-installing the currently deployed product completely, installing Tivoli 3.6 servers and clients from the MSS Applications Server (P) machine, then loading the Management Framework and Enterprise Console upgrade.

Table 5-6 provides migration implementation detail for the Tivoli Server Migration.

Table 5-6. Phase 4: Tivoli Migration (1 of 2)

DAAC	COTS Product Migration Target	Current Baseline Version	Migration Version	Targeted Sybase Installation	Targeted Sybase Version at Migration	Support for Sybase 11.9.2 Upgrade	Custom Code
EDC	e0mss21	3.6	3.6.3 for TEC Framework and 3.6.2 for Enterprise Console/other components remain at 3.6	e0mss21	11.5.1.2	Yes	None
GSFC	g0mss21	3.6	3.6.3 for TEC Framework and 3.6.2 for Enterprise Console/other components remain at 3.6	g0mss21	11.5.1.2	Yes	None

Table 5-6. Phase 4: Tivoli Migration (2 of 2)

DAAC	COTS Product Migration Target	Current Baseline Version	Migration Version	Targeted Sybase Installation	Targeted Sybase Version at Migration	Support for Sybase 11.9.2 Upgrade	Custom Code
LaRC	l0mss21	3.6	3.6.3 for TEC Framework and 3.6.2 for Enterprise Console/other components remain at 3.6	l0mss21	11.5.1.2	Yes	None
NSIDC	n0mss21	3.6	3.6.3 for TEC Framework and 3.6.2 for Enterprise Console/other components remain at 3.6	n0mss21	11.5.1.2	Yes	None
PVC	p0mss21	3.6	3.6.3 for TEC Framework and 3.6.2 for Enterprise Console/other components remain at 3.6	p0mss21	11.5.1.2	Yes	None
VATC	t1mss06	3.6	3.6.3 for TEC Framework and 3.6.2 for Enterprise Console/other components remain at 3.6	t1mss06	11.5.1.2	Yes	None
SMC	m0mss16	3.6	3.6.3 for TEC Framework and 3.6.2 for Enterprise Console/other components remain at 3.6	m0mss16	11.5.1.2	Yes	None

Instructions for all installation and configuration activities related to the Tivoli Server Migration and Upgrade will be provided in the Tivoli Server Migration and Upgrade PSR.

5.5 Phase 5 Implementation: DAR-Main migration

Phase 5 applies to EDC only. DarMain (EcCsDarMainMSSSRVR_EDC) is a custom code installable unit for EDC only. EcCsDarMain is the executable for simulator of Aster GDS server. It supports seven interfaces that Dar Gateway requires: SubmitDar, ModifyDar, QueryxARStatus, QuerySubxARStatus, QueryxARContents, QueryxARScenes and QueryxARSummary.

DarMain (EcCsDarMainMSSSRVR_EDC) will be migrated from HP MSS Server to the Interface Server 01 at EDC (e0ins02). There are no COTS dependencies associated with this custom code installable unit. EcCsDarMainMSSSRVR_EDC will be delivered as a TE. Table 5-7 identifies the Solaris migration hosts for the DAR-Main custom code.

Table 5-7. DAR-Main Solaris Migration Hosts

e0ins02
t1ins01
f2ins01

5.6 Phase 6 Implementation: HP Removal and Maintenance Review

After completion of all activities in the first five phases, Phase 6 will begin with preparation to return all DAAC HPs to Landover.

5.6.1 Shutdown and Removal of HPs

The activities identified in the first five phases must be completed before implementation of this final phase. The following checklist is provided in Table 5-8 to verify that all HP-To-Sun Migration activities have been completed.

Table 5-8. HP-To-Sun Migration Activities Completion Checklist

Discussed in Phase	HP-To-Sun Migration Task	Completed
1.	• Migrate DBVision to Sun. • Verify Solaris installation is functional.	
2.	• Migrate DCE Cell Manager Management Agent to Sun. • Migrate DCE Time Service/Courier to alternative Sun host. • Verify Solaris installation is functional.	
3.	• Migrate EcMsTtMSSSRVR custom code. • Install Netscape Enterprise Server on Remedy target Sun host. • Migrate Remedy ARS to Sun. • Migrate Remedy database to Sun. • Migrate Remedy to DDTS Translation Tool (SMC Only) • Verify Solaris installation is functional.	
4.	• Migrate Tivoli Server to Sun. • Migrate Tivoli database to Sun. • Verify Solaris installation is functional.	
5.	• Migrate EcCsDarMainMSSSRVR_EDC (EDC only). • Verify Solaris installation is functional.	

5.6.2 Return of HP Machines

When all check-list items identified in Table 5-8 have been completed, all HPs and attached devices (RAID) should be shut down and returned to Landover as specified in the ECS Property Management Plan (602-CD-001-002). This should include all documentation and media associated with the HPs. Before returning hardware to the EDF, contact Tim Wells at (301) 883-4021 or twells@eos.hitc.com, for shipping instructions and answers to any questions or additional information related to the return process.

Although the migration of some COTS products discussed in this document require license removal during or shortly after migration, the DAACs will not be requested to uninstall software that does not require a de-installation procedure for migration.

All licenses not recovered previously will be recovered when returned to the ILS organization. The process followed by the Property Management Organization to return unneeded equipment to the Government specifies that a "clean" machine be returned to the government. The Property Management Organization will "uninstall" all software when preparing the equipment for return to the Government as specified in the Property Management Plan. This is expected to conserve resources at the DAACs that would be required to separately uninstall several COTS software products per HP machine. Development and Systems Engineering Resources will also be conserved because the uninstall instructions will not need to be developed and tested.

Table 5-9 identifies the HP machines that are requested to be returned to ILS at the Landover facility.

Table 5-9. DAAC HP Hosts To Be Returned

Site	Baselined Host
EDC	e0msh03 e0msh11
GSFC	g0msh08 g0msh11
LaRC	l0msh03 l0msh22
NSIDC	n0msh03 n0msh10
PVC	p0msh08 p0msh11
SMC	m0msh03 m0msh14
VATC	t1msh01 t1msh08
VSMC	t1smh01 t1smh02

HP Equipment in the EDF, except for that identified in Table 5-10, will also be turned over to the Property Management Organization for return to the Government.

5.6.3 Maintenance Review

HP Hardware and Software maintenance has been continued for a limited period (through 06/30/2001). Prior to expiration of the current maintenance, ILS Software Maintenance will review HP Hardware and Software maintenance and renew only the items that are planned to be retained after the HP-To-Sun Migration is completed. The platforms that will need continued maintenance support for HP hardware and software identified in Table 5.10.

Table 5-10. HP Hardware and Software Retained with Maintenance Support

HP Hardware	HP Software	Retention Rationale
p0msh11 RAID device	N/A	Utilize RAID device with Sun host (p0tes03) to provide functionality previously supported by an HP host machine.
knine	N/A	Required as File Server
m0msh03 RAID Device	N/A	Utilize RAID device with Sun host (m0mss04) to provide functionality previously supported by an HP host machine.
relbhpms	• HP C Compiler for HP-UX 10.20 • HP FORTRAN 77 Compiler for HP-UX 10.20	Required to support Toolkit Build Machine for HP-UX 10.20
bennie	• HP C Compiler for HP-UX 11.0 • HP FORTRAN 90 Compiler for HP-UX 11.0	Required to support Toolkit Build and Development Machine for 64-bit HP-UX 11.0
N/A	OpenView NNM on e0mss21	Pending review of OpenView
N/A	OpenView NNM on g0mss21	Pending review of OpenView
N/A	OpenView NNM on l0mss21	Pending review of OpenView
N/A	OpenView NNM on n0mss21	Pending review of OpenView
N/A	OpenView NNM on p0mss21	Pending review of OpenView
N/A	OpenView NNM on t1mss06	Pending review of OpenView
N/A	OpenView NNM on m0mss16	Pending review of OpenView
N/A	OpenView NNM on EDF machines	Pending review of OpenView

There will also be a small number of HP Hardware devices retained after the HP-To-Sun Migration is completed. These devices are identified in Table 5-11. This HP Hardware will be retained without maintenance. If the HP hardware fails during this period no repair or maintenance will be available for the device.

Table 5-11. HP Machines To Be Retained with No Maintenance

HP Machine	Rationale for Retention	Planned Retention Period
mohawk	CDS Browser Access	Until DCE is removed from all ECS environments.